

Urban Agriculture: *Unlimited to any place receives sunlight !*

The United Nations Organization has predicted that by the year 2050, out of the world population 2/3 will be living in urban areas. There are three main reasons why the urban populations increase.

1. Increase of population that are already concentrated in urban areas.
2. Migration of people from rural areas to urban areas.
3. Change of developing semi-urban areas in to urban areas.

If this is the trend you may think that, is there any room for agriculture under this challenge? Why? We have been used to think that to take into agriculture there should be sufficient land and space. There are many examples to show that, to-day's world is not fitting to this thinking. Even in our mind there are a large number of examples for this. Why? Under the technological development there are answers or alternate methodology and practices have been generated to meet the needs of the society.

Under the above mentioned situation called as 'horizontal development' we are used to look for more land for Rural Agriculture. But with the increase of population, the urbanization has some influence to increase rate of limitation of agricultural lands. Therefore, due to this limits, it is possible to take to 'vertical development' by using cultivation structures in tall buildings for urban agriculture. According to a survey, by using organized vertical



agricultural methods, it is possible to get 10 times more yield from same unit that are using non-organized cultivation methods. This may be a new experience for you. As the urban agriculture is a newly added 'agriculture pattern', most of us cannot recognize the difference between urban and rural agriculture. Yet, under 'vertical development programme', there is a trend to increase the acquaintance nationally and internationally to increase the productivity.

Urban agriculture?

Agriculture practiced in commercial scale or even as a hobby being done in an urban or semi-urban area, municipal or within the limits of municipality is known as urban agriculture. Using various agriculture methodology, urban agriculture can be carried out. It is a production done based on limited land and water resources and related to processing and selling facts. By cycling carbonic (or organic) and non-carbonic matter mainly, and in all possible time, using appropriate technology to cycle inorganic matter, urban agriculture can be done using various methodologies that generate agricultural diversity.

By the same manner by proper management of land, water and light, production, processing activity and agricultural sale, under a scientific foundation using so called "Micro Agricultural Production Process" the urban agriculture can be put on a sustainable foundation. Accordingly, cultivation

Through scientific creativity, various structures can be created, a room is open for entrepreneurs. There is a relation between food crop cultivation and food consumption which has shown scientifically. Here people with much experience in cultivation are participating while also directed to high nutrition consumption. Through this strategy, consumption of processed instant food with high percentage of sugar, fat, salt and various types of additives can be minimized, and can enter into consumption of nutritional food evaluating scientifically.

of few vegetable types or having a few fruit trees or flower beds is not urban agriculture. Cultivation of garden crops, animal husbandry, fish, medicinal plants and ornamental flower cultivation should be done to fit into the places concerned to increase the variety in Urban Agriculture.

Scientific entrance

Through Urban Agriculture entrepreneurship, a scientific entrance can be used to get solutions on undesirable physical, mental, spiritual, economical, social and environmental conditions of people. By considering physical and mental conditions, one can obtain balance nutrition, by consuming fresh vegetables and fruits. The present problem on malnutrition, under nutrition or over consumption can be minimized, and can contribute to good mental health. Expenses on food can be minimized, by opening urban agricultures market, while generating avenues of income on this scientific basis including scientific education on nutrition.



By looking at the social and spiritual level, it can minimize the liquidity of low income earners, as well as to reduce the crime rate, by involving the third generation for new agriculture cultivation pattern they can contribute to social missions. Society can achieve both measurable and non measurable benefits by looking at the environmental aspect, by creating a bio-scientific environment, improving micro environment, increasing the bio-diversity, by proper management of waste material reducing the cost of energy. When looking further through using developing nanotechnology the beneficial condition of urban agriculture can be increased and it will increase overall economy thus will attract every body's attention.

Next it is very appropriate to draw attention to some features associated with urbanization that affect urban agriculture. The industrialization that comes along with urbanization creates industrial wastes. There is a possibility of accumulating heavy metal in the soil, and in these places it is appropriate to grow annual fruit crops. The reason for this is that annual fruit crops absorb heavy metals slowly. In such places, one should be careful not to grow leafy vegetables. Also, one should carefully select common urban

waste matter, and pay attention about heavy metals when making compost manure from waste. Development effort for safe health, environmental quality improvement and social friendly activities can be achieved. Through this activity, it would be possible to create a scientific entrance for the entire country through urban agriculture for an economic development.

Conceptual activities

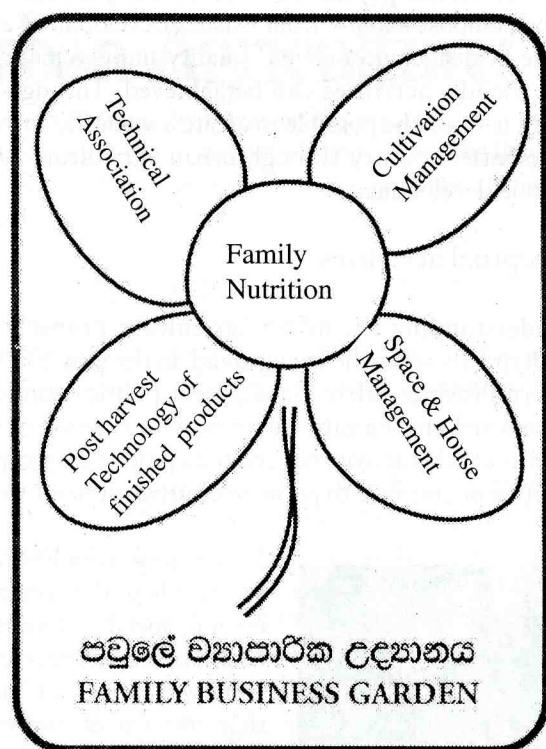
By understanding the urban agriculture properly and considering its scientific background, in the year 2000, the Western Province urban management political authority put forward the Family Business Concept of urban-agriculture? This activity has created a practical conceptual development entrance to popularize urban agriculture.

This concept which is aimed to develop the physical mental, social and spiritual health based on space in the home garden has not limited that concept of improving family health. This also has created main avenue of income from an enterprise based on urban agriculture. Under the International Environment day celebrations in the year 2000 this concept was launched. There is a novelty in this concept while making it an avenue for sustainable

income. Based on both environmental and commercial separately or collectively, it is possible to participate in this project more creatively. This concept allows creativity mixed with science and fine-arts irrespective of sender or any age difference. The concepts' symbol is 'a four petaled flower' and the four petals in it depict four ways of strategy. The stalk of it symbolizes flexibility and permanent base. Overall main output is oriented towards the "Family nutrition". One can also enter into this concept, she/he need not be a farmer or a person with agricultural expertise, any urban person can enter into urban agriculture through this concept.

Family business garden: A scientific way

When establishing the family business concept practically under urban agriculture, one can start with any number of strategies depicted by four petals in the flower. It is individuals responsibility selecting which one to start.



Family business garden symbolic flower

Concepts considered as four petals of the symbolic “Four petaled flower” is given below.

* Technical Association

Based on the number of family members, participation, amount of money in hand, mixed with scientific and traditional cultivation methods, family has to consider this as a sustainable income generation strategy. When cultivating crops for the market, it is important to cultivate crops that have high demand, new types and those which are compatible with the area concerned. In this case, using Tissue Culture Technology, Aerophonics, Acquaponic, Zeoponic, Roofscape Technology, and Micro-irrigation Techniques as a cultivation methodology is beneficial. Also in the Technical Association, using Information Communication Technology (ICT) it would be possible to develop united groups containing the description of entrepreneurs connected to the supply chain.

* Cultivation management

By this concept it is expected to use proper management of sand, water, pest control methods as well as sunlight to get products from the crops cultivated in a limited location. By cycling house hold waste matter to generate compost in a

small scale, using plastic bottles, roof gutters that are discarded as cultivation structures, is a strategy to motivate one to take to vertical space. When it is possible to join animal husbandry through integrated farming, it is possible to get additional benefits. Also, by following organic farming, which is a new trend, one can get maximum benefits. Also by using micro-irrigation techniques, one can avoid getting a higher water bill. Collecting the rain water (rain water harvesting) and using simple scientific methods to filter waste water going out from the kitchen and the bathroom save money spent on treated drinking water in urban agriculture. In Sri Lanka, rain water is available in excess and rain water should be collected and used for urban agriculture.

* Post Harvest Technology and increasing the value of finished products

Numerous studies have shown that it takes between 5-10 days for a product to reach the consumer from harvesting due to transport and storage conditions. Due to this time difference, 30-50% of the nutritional value of the food is lost. Therefore, even though, this is a family product, to win the market, one should follow proper post-harvest methods and to get a higher finished product value and entrepreneurs should be motivated accordingly. Also, priority should be given to get a sufficient income during the season as well as in the off-season. Also, to create a demand among the consumers and to face that situation one should make use of scientific methods to have variety of products. This is important to maintain a sustainable family enterprise garden. The transport system has a special effect on the post harvest lost. The urban micro-entrepreneurship has a perfect alternative and it is important to use the new scientific knowledge practically.

* Space and House Managements

These strategies make ways to minimize the mental stress that exists in urban environment due to work pressure and competitions. And through strategies used in the “Landscape Creation Theory” and ‘House Beautifying Methodology’ the stress can be minimized. Often, you may be cultivating only flowers and ornamental plants to take to gardening and land beautifying. By adding fruits, vegetables and medicinal plants you get an ‘Edible Landscape and Edible Airspace’ which will help to generate both physical and mental health. Here one could cultivate fruits, vegetables other food crops and medicinal plants mixed together to create attractive patterns. One can see that it creates a different mental peace. By earning a more nutritious product, the mental and social health will also be improved. Also, by following new management and

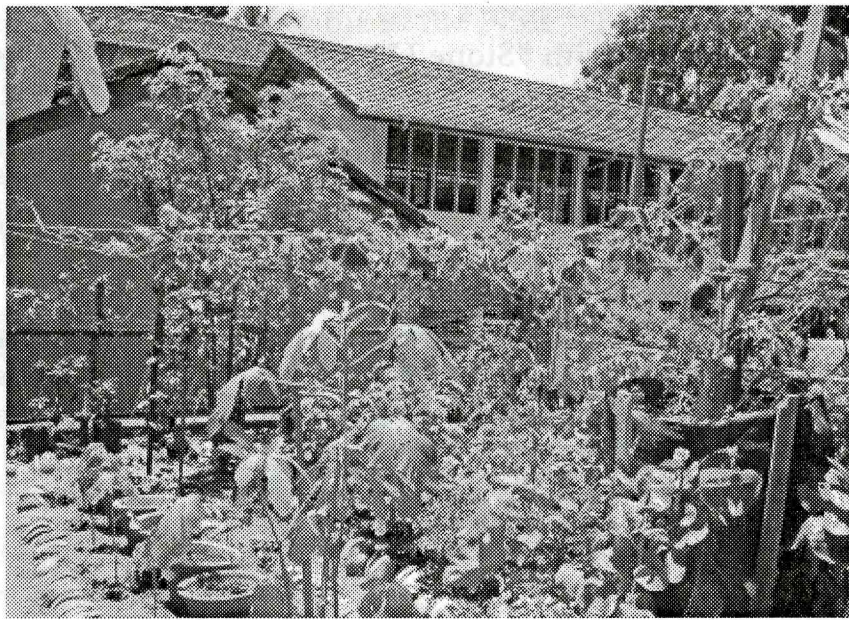
methodology from verandah to kitchen, the value and the standards of agriculture entrepreneurship will be developed.

Overall result: Family nutrition and opportunity for creativity

Thus one can use the strategies and activities used in the family business garden concept to increase the Urban Agriculture Productivity and Profit. Thereby the benefits obtained privately as well as socially are immense. There is much room to use traditional and new scientific finding mixed together, as an appropriate mixture and as a creative work. Thereby you are invited, to take Urban Agriculture through scientific agriculture to increase the urban economy and national economy, through family business garden concept which give a timely contribution.

You can join by choosing few crops that you like, that help to give family nutrition, considering the space available with sunlight. The various life supporting devices (eg. cultivation flowers, discarded plastic bottles, racks, hydrophobic cultivation boxes) can be used. The selected vegetables, fruits, medicinal plants, tubers, or spices can be grown mixed with flowers. They can be cultivated creatively. Also pesticide control methods can be used within the cultivation.

Through scientific creativity, various structures can be created, a room is open for entrepreneurs. There is a relation between food crop cultivation and food consumption which has shown scientifically. Here people with much experience



in cultivation are participating while also directed to high nutrition consumption. Through this strategy, consumption of processed instant food with high percentage of sugar, fat, salt and various types of additives can be minimized, and can enter into consumption of nutritional food evaluating scientifically.

By accepting this invitation, you will be more active, as a catalyst there is a special room in the National Agriculture Policy, for urban agriculture. This is a special opportunity. We have the ability to work together by joining household, school, Institutional, Rural Administration Institutes, Non-Governmental Organizations, Private Sector, Community Organization, and International Organizations.

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